

# UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 96271  
PEDESTRIAN WALKWAY  
OVER THE  
CANNON RIVER  
DISTRICT 6 - RICE COUNTY

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PREPARED FOR THE  
MINNESOTA DEPARTMENT OF TRANSPORTATION  
BY  
COLLINS ENGINEERS, INC.  
JOB NO. 5221

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 96271, Center Pier, was found to be in good condition with no defects of structural significance observed. Footing exposure with minimal vertical face exposed was observed around the entire perimeter of the pier. A water control dam structure was located approximately 500 feet upstream of the bridge.

INSPECTION FINDINGS:

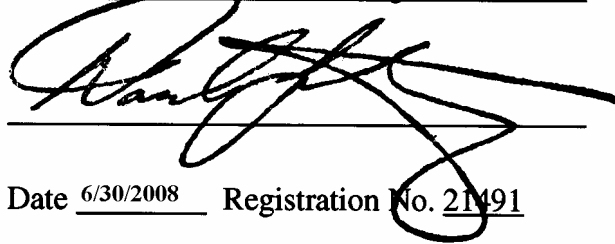
- (A) Concrete of pier was in sound and good condition with no notable defects.
- (B) Footing exposure, at approximately 4.4 feet below water, was observed around the entire pier with a maximum vertical exposure ranging from 0.4 to 0.6 feet.
- (C) The channel bottom consisted of rock with no appreciable probe rod penetration possible.

RECOMMENDATIONS:

- (A) Monitor the footing exposure around the pier during future inspections.
- (B) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

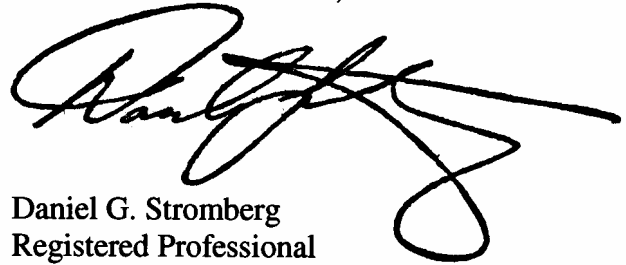
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

  
Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg  
Registered Professional  
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 96271

Feature Crossed: Cannon River

Feature Carried: Pedestrian Walkway

Location: District 6 - Rice County

Bridge Description: The superstructure consists of a two span steel girder bridge supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and one reinforced concrete pier. No foundation information or design plans were available.

2. INSPECTION DATA

Professional Engineer/Team Leader: Daniel G. Stromberg, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan

Date: October 23, 2007

Weather Conditions: Sunny, 58°F

Underwater Visibility: 0.5 feet

Waterway Velocity: 4.0 f.p.s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Center Pier

General Shape: The pier consists of a reinforced concrete shaft (overall rectangular).  
Foundation information was not available.

Maximum Water Depth at Substructure Inspected: Approximately 5.0 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the bridge seat on the downstream end of the Center Pier.

Water Surface: The waterline was approximately 9.9 feet below reference.  
Assumed Waterline Elevation = 90.1.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/10/07

Item 113: Scour Critical Bridges: Code G/07

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

       Yes   X   No



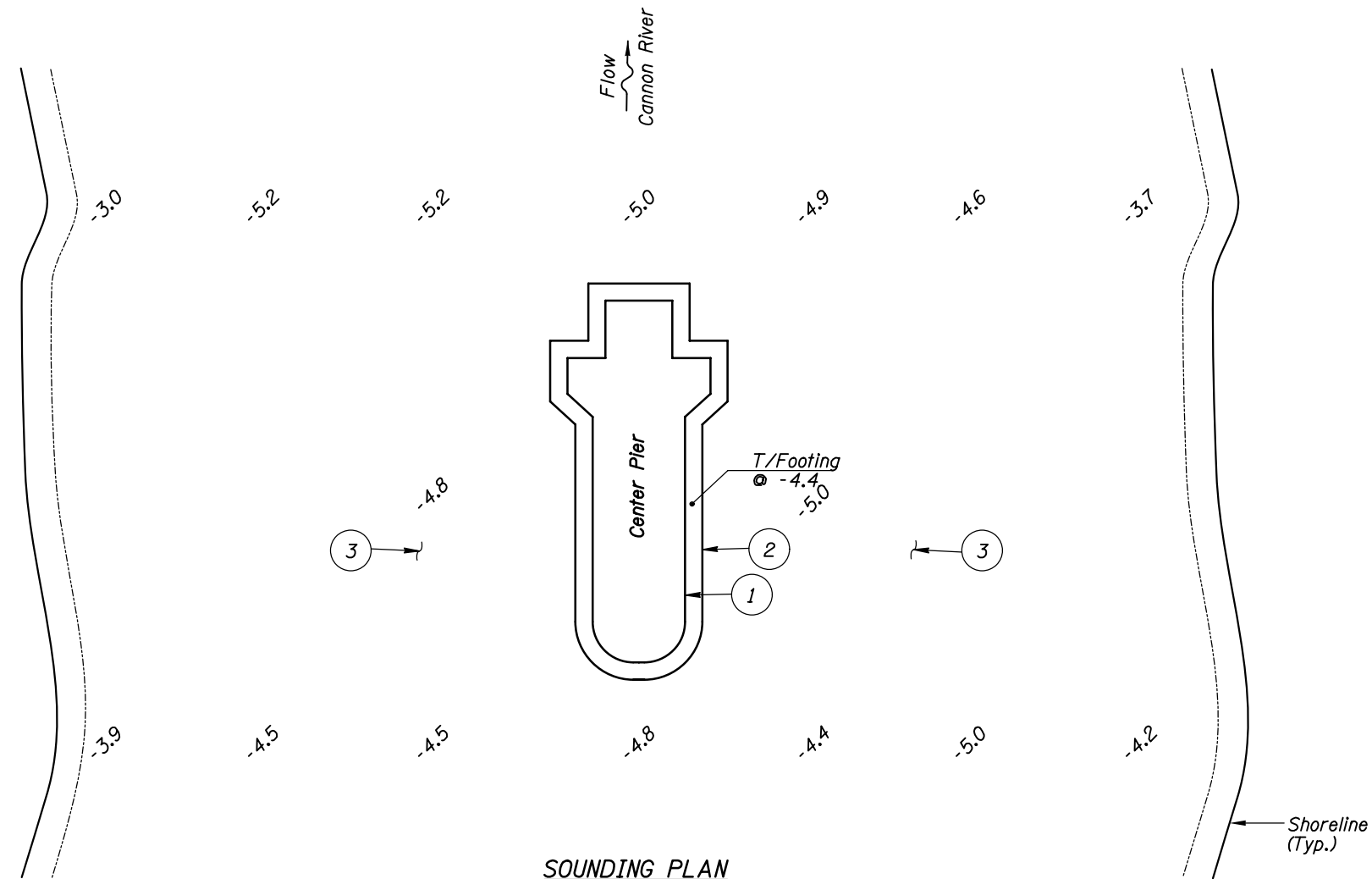
Photograph 1. Overall View of the Structure, Looking South.



Photograph 2. View of the Center Pier, Looking Northeast.



Photograph 3. View of the Center Pier, Looking Southwest.



SOUNDING PLAN

INSPECTION NOTES:

- 1 Concrete was smooth and sound with no notable defects.
- 2 Footing exposure was observed at 4.4 feet below waterline around the entire pier with a maximum vertical exposure ranging from 0.4 to 0.6 feet.
- 3 Channel bottom consisted of rock with no probe rod penetration.

GENERAL NOTES:

1. The Center Pier of the bridge was inspected underwater.
2. At the time of inspection, on October 23, 2007, the waterline was located approximately 9.9 feet below the top of bridge seat on the downstream end of the pier. Due to lack of design plan information the reference elevation was assumed to be 100.0 feet. This corresponds to a waterline elevation of 90.1.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units as well as around the pier structures.

Legend

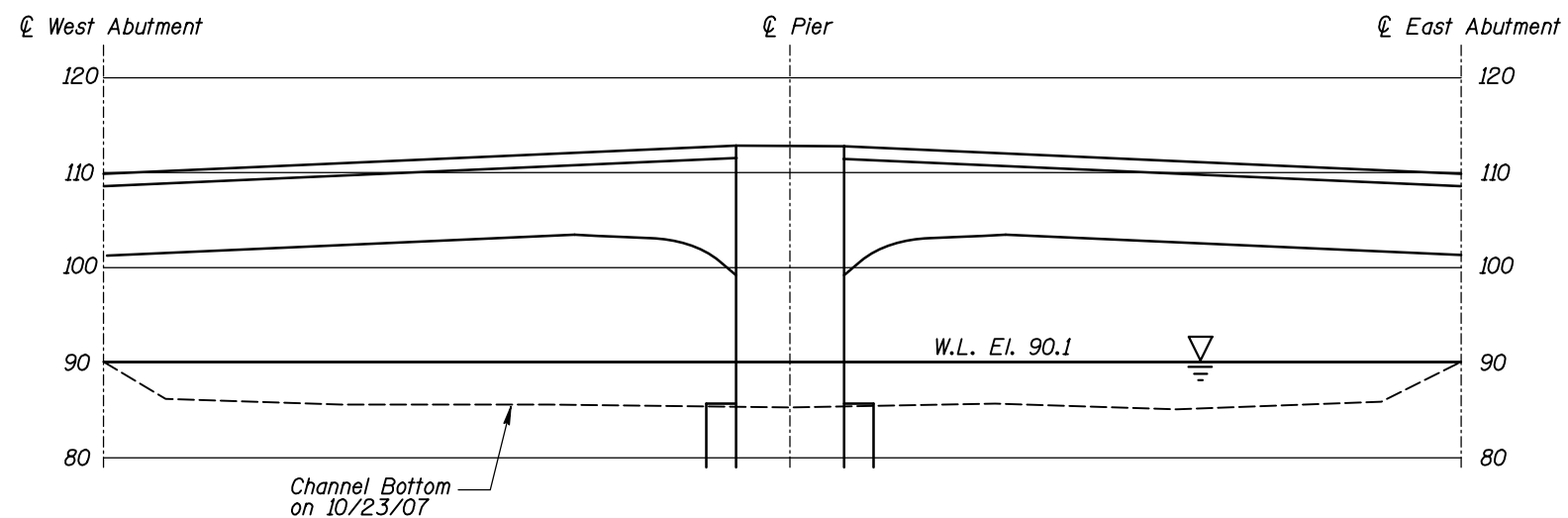
-0.4 Sounding Depth (10/23/07)

**MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION**

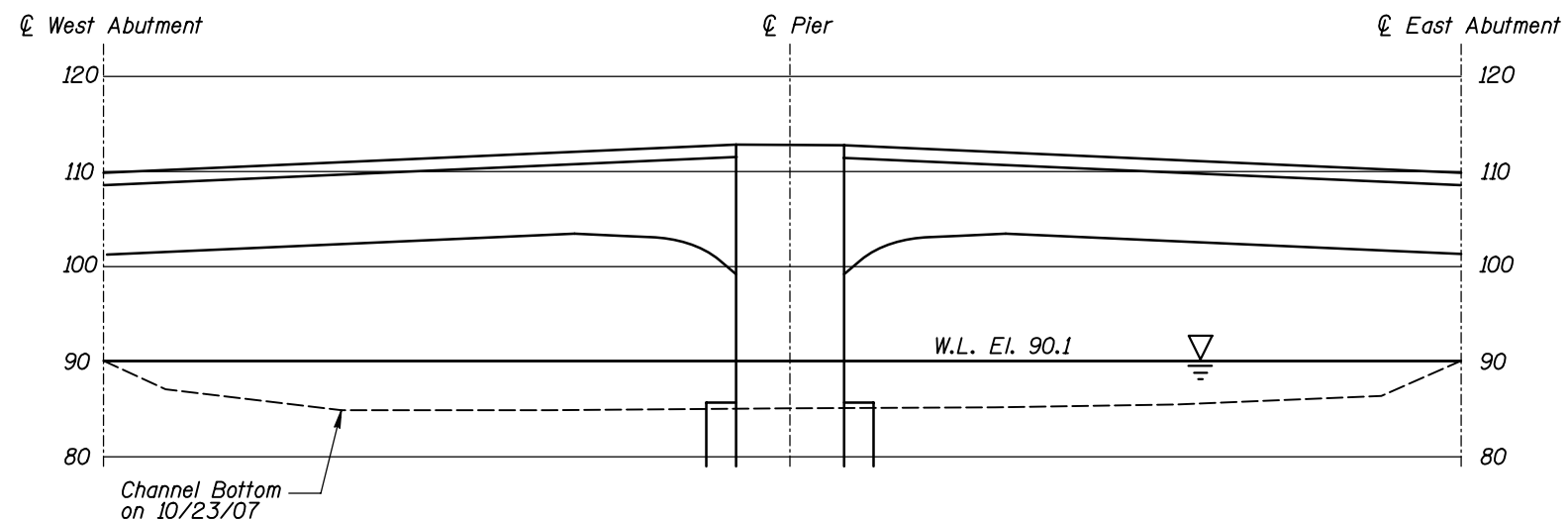
STRUCTURE NO. 96271  
OVER THE CANNON RIVER  
DISTRICT 6, RICE COUNTY

**INSPECTION AND SOUNDING PLAN**

Drawn By: CAI	<b>COLLINS ENGINEERS</b>	123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com	Date: OCT, 2007
Checked By: MDK			Scale: NTS
Code: 522196271			Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

**MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION**

STRUCTURE NO. 96271  
OVER THE CANNON RIVER  
DISTRICT 6, RICE COUNTY  
**UPSTREAM AND DOWNSTREAM  
FASCIA PROFILES**

Drawn By: CAI	<b>COLLINS ENGINEERS</b> <small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: OCT.2007
Checked By: MDK		Scale: 1"=20'
Code: 522196271		Figure No.: 2

MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES  
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 23, 2007

ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E., S.E.

BRIDGE NO: 96271 WEATHER: Sunny, 58°F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: X SCUBA        SURFACE SUPPLIED AIR  
       OTHER       

PERSONNEL: Clayton G. Brookins, Valerie Roustan

EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Probe Rod, Camera

TIME IN WATER: 5:20 p.m.

TIME OUT OF WATER: 5:50 p.m.

WATERWAY DATA: VELOCITY 4.0 f.p.s

VISIBILITY 0.5 feet

DEPTH 5.0 feet maximum at the Center Pier

ELEMENTS INSPECTED: Center Pier

REMARKS: Overall the concrete of the Center Pier was smooth and sound. Footing exposure, at approximately 4.4 feet below water, was observed around the entire pier with a maximum vertical exposure ranging from 0.4 to 0.6 feet. The channel bottom consisted of rock with no probe rod penetration possible.

FURTHER ACTION NEEDED:        YES X NO

Monitor the footing exposure around the entire pier during future inspections.

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 96271  
INSPECTORS Collins Engineers, Inc.  
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E., S.E.  
WATERWAY CROSSED Cannon River

INSPECTION DATE October 23, 2007

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER (BRACING)	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Center Pier	5.0'	N	7	7	9	N	7	7	N	N	N	7	7	N	N	N	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall the concrete of the Center Pier was smooth and sound. Footing exposure, at approximately 4.4 feet below water, was observed around the entire pier with a maximum vertical exposure ranging from 0.4 to 0.6 feet. The channel bottom consisted of rock with no probe rod penetration possible.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.  
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.